

A Rare Cause of Recurrent Left-Sided Pleuropulmonary Infection: Retained Bulldog Clamp in the Pleural Cavity

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Abstract: ***Background:** Retained surgical instruments are rare but serious postoperative complications that can result in chronic infection, pain, and morbidity. Retained metallic clamps are particularly unusual, especially in thoracic surgeries. **Case summary:** A 69-year-old male with a history of coronary artery bypass grafting (CABG) in 2003 presented with recurrent left lower lobe consolidation and multiloculated pleural effusion. Imaging revealed a metallic foreign body in the left pleural cavity. Surgical exploration confirmed the presence of a bulldog vascular clamp embedded near the left diaphragm. The foreign body was removed via thoracotomy and the associated lung injury repaired. The patient had complete recovery with no recurrence at follow-up. **Conclusion:** This case highlights an extremely rare instance of a retained intrathoracic bulldog clamp presenting years after cardiac surgery. It underscores the need for strict intraoperative instrument accounting and high suspicion in patients with unexplained chronic thoracic symptoms and prior surgical history.*

Keywords: Retained surgical instruments, recurrent left lower lobe consolidation, bulldog vascular clamp, thoracotomy

1. Introduction

Retained surgical items (RSIs) are defined as any surgical instrument, tool, or material inadvertently left in a patient's body after surgery. They are classified as preventable and are associated with medicolegal and clinical consequences. The majority of RSIs are soft items like sponges or gauze. Retained metallic instruments, such as clamps, are rare and even more uncommon in thoracic surgery.

We report a unique case of a retained bulldog-vascular-clamp in the left pleural cavity of a patient with prior cardiac surgery, who presented years later with recurrent pleural effusions and pulmonary infections. To our knowledge, few such cases have been reported in the literature.

2. Case History

A 69-year-old male with a known history of CABG (2003), cervical spine surgery (2018), and treated Non-Hodgkin's Lymphoma, presented to our centre with complaints of dyspnea, cough, and low-grade fever for several weeks. He had recurrent hospital visits for similar symptoms over the past few months and was previously treated for left lower lobe pneumonia and pleural effusion.

Physical examination revealed reduced air entry and dullness to percussion over the left lower hemithorax. Routine blood tests were within normal limits except for mild leukocytosis. Chest X-ray revealed left mid and lower zone haziness (Figure 1). A contrast-enhanced computed tomography (CECT) of the thorax showed multiloculated pleural effusion with left lower lobe consolidation and a metallic foreign body

measuring approximately 2.5 cm, consistent with a surgical instrument, in the pleural space near the diaphragm (Figure 2).



Figure 1: Chest X-ray showing left mid and lower zone haziness

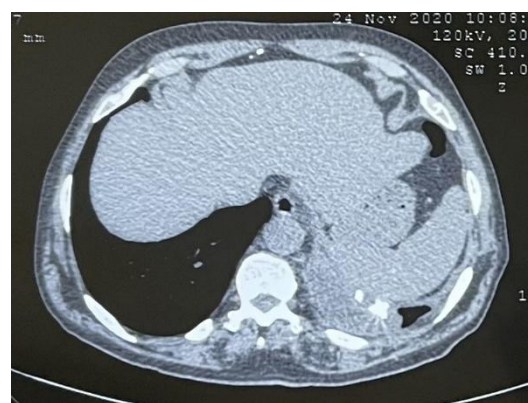


Figure 2: Contrast-enhanced computed tomography chest showing metallic foreign body in the left pleural cavity near the diaphragm.

Given the clinical and radiological findings, a left thoracotomy with decortication and foreign body retrieval was planned. Intraoperatively, the lung was found to be thickened, adherent to the chest wall, and encased in dense pleural peel. The pleura was decorticated, and dissection near the left diaphragm revealed a retained bulldog vascular clamp partially embedded in the lung parenchyma (**Figure 3**). The foreign body was carefully extracted, and the local lung injury repaired.

Postoperatively, the patient was extubated within 6 hours, had an uneventful ICU stay, and was discharged on day 6. Follow-up chest imaging showed full lung re-expansion and resolution of symptoms. The patient remains asymptomatic at 6 months.

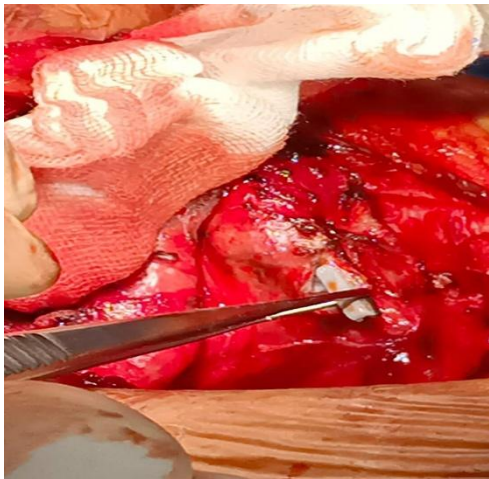


Figure 3: Intraoperative image of the retained bulldog clamp being removed from the left lower pleural cavity

3. Discussion

The retention of surgical instruments is a well-recognized but rare complication. According to Gawande et al., the most common risk factors include emergency surgeries, unexpected intraoperative events, and changes in operating teams. [1] In thoracic surgery, sponges and gauze pieces are more likely to be retained than hard metallic instruments. [2,3]

Bulldog clamps (**Figure 4**) are small spring-loaded vascular clamps commonly used in cardiovascular and thoracic procedures to temporarily occlude vessels. Their small size and deep use near major vascular structures make them prone to accidental misplacement or retention, particularly during complex procedures like CABG.



Figure 4: Bulldog clamp

In this case, the patient had undergone CABG 18 years earlier. The likely mechanism was dislodgement of the clamp into the pleural space during closure, going unnoticed during postoperative checks. The clamp remained quiescent until local tissue inflammation and recurrent infection set in, manifesting as consolidation and effusion. Imaging plays a vital role in diagnosis. CT scans readily identify metallic objects and aid in surgical planning. [4] Definitive treatment involves surgical removal. Prevention includes meticulous surgical counts, use of radio-opaque markers, and postoperative imaging in cases with unresolved symptoms. [5]

4. Conclusion

This case emphasizes the need for clinical vigilance in patients with a history of surgery presenting with unexplained pulmonary symptoms. Retained metallic foreign bodies, though rare, should be considered in the differential. Strict adherence to surgical safety protocols and instrument counts is essential to prevent such life-threatening complications.

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